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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,671	09/12/2005	Jae Min Oh	50098/011001	9560

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EXAMINER	
LISTVOYB, GREGORY	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
11/26/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentadministrator@clarkelbing.com

Office Action Summary	Application No.	Applicant(s)	
	10/525,671	OH ET AL.	
	Examiner	Art Unit	
	GREGORY LISTVOYB	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 16-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *2,18* is/are allowed.

6)☒ Claim(s) *1,3-11,16,17 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

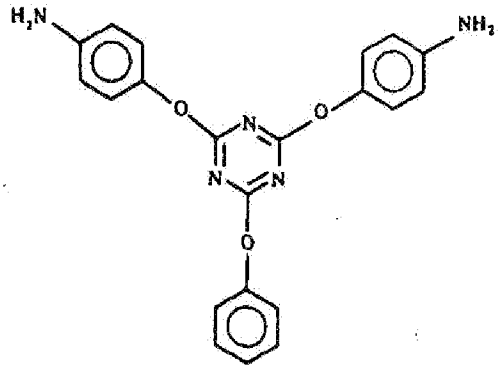
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

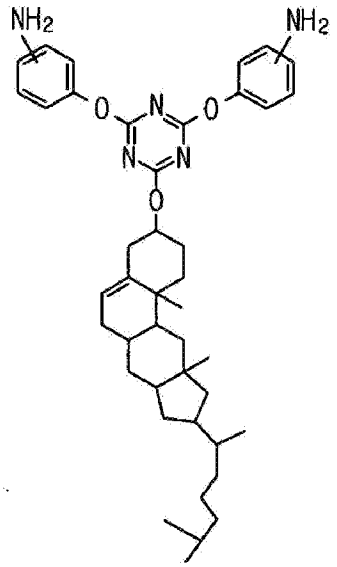
Claims 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Melissaris et al (New crosslinkable polyimides... Eur. Polymer Journal, vol 25 455-460 (1989)), herein Melissaris in combination with Seltzer et al (US 3729448) herein Seltzer in combination with Mizushima et al (US 5756649) herein Mizushima and Kataoka et al (US 2004/0188653) herein Kataoka (necessitated by Amendment).

Melissaris discloses the following diamine structure (see Page 455):

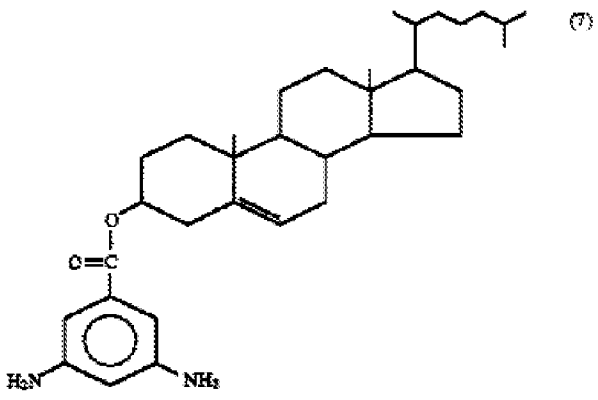


BAPT

The difference between Melissaris's diamine and diamine claimed in amended Claim 1, Melissaris's diamine has a Phenyl Ether group, whereas Claim 1 claims complex steroid aliphatic group:



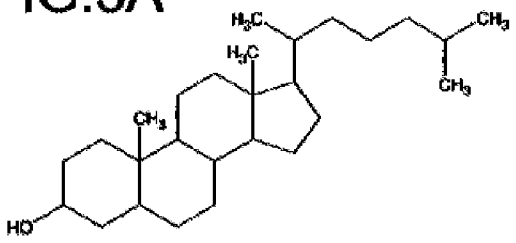
Mizushima teaches liquid crystal aligning agent, comprising a diamine of the following formula (see column 6, line 60):



Note that ester link group can be replaced by ether one (see column 6, line 45), which is identical to one of amended claim 1.

Kataoka teaches liquid crystal alignment agent, which includes the following structure:

FIG.5A



Kataoka teaches that this structure provides a resin, whose electrical characteristics and vertically aligning characteristics are balanced, which provides an excellent liquid crystal display (see Column 4, line 0065).

Therefore, it would have been obvious to a person of ordinary skills in the art to replace Aromatic blocking group in Melissaris's diamine to steroidal one in order to balance electrical and aligning characteristics of the material, providing an excellent liquid crystal display.

Claim 1 and 3-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamonzen et al (US patent 6316170), herein Kawamonzen in combination with Melissaris and Seltzer and Mizushima and Kataoka (necessitated by Amendment)..

.

Kawamonzen discloses a polyamic solution and a liquid crystal optical element member (Column 1, line 15) based on heterocyclic cycle (triazine) containing polyimide (Column 9, line 50).

Regarding Claims 3 -5, Kawamonzen discloses a polyamic acid, comprising a tetravalent aromatic or alicyclic group (column 13, line 45) and aromatic diamines compound (Column 14, line 35, column 16, line 50) and siloxane -based diamines (Column 18, line 35), which is present in the amount of 0.02-0.2 molar equivalent of all the diamines compounds (column 19, line 5).

Regarding claim 6-7, a dianhydride comprising an aromatic or alicyclic group or their mixture (Column 14, lines 25 and 50).

Kawamonzen discloses that inherent viscosity of the above polyamic acid is between 0.3 dl/g and 1.5 dl/g, meeting the limitations of Claim 8 regarding MW between 10 K and 500K.

Kawamonzen does not teach bis-phenyl substituted triazine cycle of Claim 1 and a polyamic acid based on the above diamine.

Melissaris modified with Seltzer (see discussion above) teaches diamines and polyimides based on bis-phenyl substituted triazine cycle (see page 456). Triazine substitutes significantly change light adsorption pattern of the material, which can be useful for liquid crystal alignment device.

Therefore, it would have been obvious to a person with ordinary skills in the art to use Melissaris's diamines in Kawamonzen's composition used for liquid crystal optical device in order to improve its light adsorption pattern.

Kawamonzen does not teach diamine with pending steroidal group.

Mizushima teaches liquid crystal aligning agent, comprising a diamine with pending steroidal group (see discussion above).

Kataoka teaches that steroidal structure provides a resin, whose electrical characteristics and vertically aligning characteristics are balanced, which provides an excellent liquid crystal display (see Column 4, line 0065).

Therefore, it would have been obvious to a person of ordinary skills in the art to replace Aromatic blocking group in Kawamonzen's diamine to steroidal one in order to balance electrical and aligning characteristics of the material, providing an excellent liquid crystal display.

Claims 1 and 3-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Machido et al (US patent 6159654), herein Machido in combination with Melissaris and Seltzer and Mizushima and Kataoka (necessitated by Amendment).

.

Machido discloses a polyamic solution and a liquid crystal aligning agent (Column 1, line 15) based on heterocyclic cycle (triazine) containing polyimide (Column 3, line 55).

Regarding Claims 3 -5, Machido discloses a polyamic acid, comprising a tetravalent aromatic or alicyclic group (column 5, line 20) and aromatic diamines compound (Column 5, line 20) and siloxane -based diamines (Column 9, line 10).

Regarding claims 6-11, Machido discloses a method of forming liquid crystal element layer by coating polyamic acid onto substrate and entirely or partly imidizing the coating (Column 3, line 45).

Machido does not teach bis-phenyl substituted triazine cycle.

Melissaris modified with Seltzer teaches diamines and polyimides based on bis-phenyl substituted triazine cycle. Triazine substitutes significantly change light

adsorption pattern of the material, which can be useful for liquid crystal alignment device.

Therefore, it would be obvious to a person with ordinary skills in the art to use Melissaris's diamines in Machido's composition used for liquid crystal alignment film in order to improve light adsorption pattern of the material.

Machido does not teach diamine with pending steroidal group.

Mizushima teaches liquid crystal aligning agent, comprising a diamine with pending steroidal group (see discussion above).

Kataoka teaches that steroidal structure provides a resin, whose electrical characteristics and vertically aligning characteristics are balanced, which provides an excellent liquid crystal display (see Column 4, line 0065).

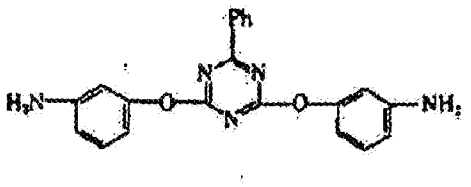
Therefore, it would have been obvious to a person of ordinary skills in the art to replace Aromatic blocking group in Machido's diamine to steroidal one in order to balance electrical and aligning characteristics of the material, providing an excellent liquid crystal display.

Allowable Subject Matter

Claims 2 and 18 allowed.

A reason for this allowance is that the search for related Prior Art does not result in a diamine structure of Formula (1) where A is -O- or -COO-; B is a direct bond; and C is a C 1-30 linear or branched aliphatic hydrocarbon group, a saturated cyclic hydrocarbon group., or a fused saturated or unsaturated cyclic hydrocarbon group.

The closest Prior Art found is Butuc et al (cited in the previous Office Action) where diamine has the following structure (see Table 1):



IV

In the above formula (IV) A is -O-, B is direct bond and C is Phenyl. The Phenyl substitute does not meet the limitations of Claim 2, since it is not aliphatic or fused cyclic compound.

Response to Arguments

Applicant's arguments with respect to claims 1, 3-11 and 16-17,19 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY LISTVOYB whose telephone number is (571)272-6105. The examiner can normally be reached on 10am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rabon Sergent/
Primary Examiner, Art Unit 1796

GL